

Sub 1. (Amended) An apparatus for tracking signals comprising:
a first tracker for tracking a first component of a first signal and for generating a first W-code signal from a second component of the first signal;
a second tracker for tracking a first component of a second signal according to the first W-code signal; and
the second component of the first signal has the same pattern as the first component of the second signal.

4. (Amended) An apparatus according to claim 3, wherein:
the first tracker generates a timing signal in accordance with the timing information for improving the accuracy of the first W-code signal.

5. (Amended) An apparatus according to claim 2, wherein:
the first tracker generates a first local component signal in accordance with the known pattern and combines the local component signal with a version of the first signal to generate the first W-code signal.

6. (Amended) An apparatus according to claim 2, wherein:
the second tracker generates a second local component signal in accordance with the known pattern and combines the second local component signal with at least one version of the second signal to generate at least one second W-code signal.

7. (Amended) An apparatus for tracking signals comprising:
a first tracker for tracking a first component of a first signal and for generating a first estimate signal from a second component of the first signal; and
a second tracker for tracking a first component of a second signal according to the first estimate signal; wherein:
the second component of the first signal has the same pattern as the first component of the second signal;

the pattern comprises a known pattern combined with an unknown pattern;

the second tracker generates a second local component signal in accordance with the known pattern and combines the second local component signal with at least one version of the second signal to generate at least one second estimate signal; and

the second tracker generates a timing signal in accordance with the timing information for improving the accuracy of the at least one second estimate signal.

8. (Amended) An apparatus for tracking signals comprising:

A2 Cont.
a first tracker for tracking a first component of a first signal and for generating a first estimate signal from a second component of the first signal; and

a second tracker for tracking a first component of a second signal according to the first estimate signal; wherein

the second component of the first signal has the same pattern as the first component of the second signal;

the pattern comprises a known pattern combined with an unknown pattern.

the first tracker generates a first local component signal in accordance with the known pattern and combines the local component signal with a version of the first signal to generate the first estimate signal; and

the second tracker combines the first estimate signal with the at least one second estimate signal to provide a tracking signal for tracking the first component of the second signal.

11. (Amended) An apparatus for tracking signals comprising:

A4
a first tracker for tracking a first component of a first signal and for generating a first estimate signal from a second component of the first signal; and

a second tracker for tracking a first component of a second signal according to the first estimate signal; wherein

the second component of the first signal has the same pattern as the first component of the second signal;

the pattern comprises a known pattern combined with an unknown pattern;

the first signal is a GPS L1 signal;

marked up version is different
used marked up version when
analyzing claim

the unknown pattern is a GPS W-code.

15. (Amended) A method of semi-codeless tracking for a GPS receiver comprising the steps of:

receiving a GPS L1 signal and generating at least a quadrature baseband version of the GPS L1 signal;

receiving a GPS L2 signal and generating baseband versions of the of the GPS L2 signal;

effecting a multiplication of the quadrature baseband version of the GPS L1 signal with a locally generated version of a P-code used to generate the Y-code component of both the GPS L1 and L2 signals, said multiplication generating a first estimate signal related to the W-code used with the P-code to generate the Y-code component;

multiplying the in-phase baseband version of the GPS L2 signal with a locally generated version of the P-code to generate a second estimate signal related to the W-code used with the P-code to generate the Y-code component;

adding the first W-code estimate signal to the second W-code estimate signal to generate a combined W-code estimate signal;

applying the first W-code estimate signal to generate tracking signals for tracking when the GPS receiver has not locked to the GPS L2 signal; and

applying the second W-code estimate signal to generate tracking signals for tracking when the GPS receiver has locked to the GPS L2 signal.

16. (Amended) A method of semi-codeless tracking for a GPS receiver comprising the steps of:

receiving a GPS L1 signal and generating at least a quadrature baseband version of the GPS L1 signal;

receiving a GPS L2 signal and generating baseband versions of the GPS L1 signal;

effecting a multiplication of the quadrature baseband version of the GPS L1 signal with a locally generated version of a P-code used to generate the Y-code component of both the GPS L1 and L2 signals, said multiplication generating a first wide-band estimate signal related to the W-code used with the P-code to generate the Y-code component;

integrating the first wide-band estimate signal based on known timing information of the Y-code to generate a first narrow-band W-code estimate signal;

multiplying the in-phase baseband version of the GPS L2 signal with a locally generated version of the P-code to generate a second wide-band estimate signal related to the W-code used with the P-code to generate the Y-code component;

integrating the second wide-band estimate signal based on known timing information of the Y-code to generate a second narrow-band W-code estimate signal;

adding the first narrow-band W-code estimate signal to the second narrow-band W-code estimate signal to generate a combined W-code estimate signal;

applying the first narrow-band W-code estimate signal to generate tracking signals for tracking when the GPS receiver has not locked to the GPS L2 signal; and

applying the second narrow band W-code estimate signal to generate tracking when the GPS receiver has locked to the GPS L2 signal.--
